

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (Currently Amended): ~~An electric field alignment~~ A method of driving a ferroelectric liquid crystal display device including a liquid crystal panel having a plurality of data lines, a plurality of gate lines, ~~and~~ a plurality of thin film transistors arranged in a zigzag configuration along a direction of the data line between adjacent data lines of the data lines and having a ferroelectric liquid crystal material, wherein a plurality of pixels are defined by crossing the gate lines and the data lines, and one data line is arranged between adjacent pixels, the method comprising:

supplying a plurality of gate voltages ~~voltage at a level greater than a threshold voltage of the thin film transistors during an electric field alignment of the ferroelectric liquid crystal material to the plurality of gate lines during an electric field alignment of the ferroelectric liquid crystal material~~, wherein each of the gate voltages is set at a level higher than a threshold voltage of the thin film transistor, the gate voltages are generated in a range of from ten to four-hundred times during the electric field alignment, and each gate voltage is simultaneously supplied to the plurality of gate lines ~~the electric field alignment of the ferroelectric liquid crystal material is performed in a period that the ferroelectric liquid crystal material is transitioned from a nematic phase to a smectic phase, wherein the gate voltage is supplied to the gate lines in a range of from ten to four-~~

~~hundred times during the electric field alignment of the ferroelectric liquid crystal material; and~~

~~inverting a polarity of a data voltage for the electric field alignment every time when the gate voltage is supplied to the gate lines and supplying a first data voltage the inverted data voltage for the electric field alignment to the plurality of data lines in response to each gate voltage, wherein a polarity of the first data voltage is inverted every time when the gate voltage is supplied;~~

sequentially supplying a plurality of scan pulses to the plurality of gate lines during normal driving for image display, wherein each of the scan pulses is generated for one horizontal period and is supplied to one of the plurality of gate lines; and

supplying a second data voltage for the image display to the plurality of data lines in response to each scan pulse, wherein a polarity of the second data voltage is inverted every time when the scan pulse is supplied

~~wherein an electric field generated from the inverted data voltage is applied to the ferroelectric liquid crystal material by using a leakage current of the thin film transistors.~~

Claims 2 and 3 (Canceled).

Claim 4 (Withdrawn): An electric field alignment method of a ferroelectric liquid crystal display device, comprising:

connecting a plurality of thin film transistors arranged along a first direction to a plurality of data lines arranging in an offset configuration between adjacent data lines;

supplying a voltage below a threshold voltage of the thin film transistors to a plurality of gate lines during an electric field alignment of ferroelectric liquid crystal material of the ferroelectric liquid crystal display device; and

supplying voltages of opposite polarity to adjacent data lines during the electric field alignment while maintaining a voltage of a ferroelectric liquid crystal cell of the ferroelectric liquid crystal display device during the electric field alignment.

Claim 5 (Withdrawn): The electric field alignment method according to claim 4, wherein the ferroelectric liquid crystal cell operates in a Half V-Switching Mode.

Claim 6 (Canceled).

Claim 7 (Withdrawn): An electric field alignment method of a ferroelectric liquid crystal display device, comprising:

connecting a plurality of thin film transistors arranged along a first direction to a plurality of data lines in an offset configuration adjacent data lines;

maintaining a plurality of gate lines in an electrically floating state during an electric field alignment of a ferroelectric liquid crystal material of the ferroelectric liquid crystal display device; and

supplying voltages of opposite polarity to the adjacent data lines during the electric field alignment while maintaining a voltage of a ferroelectric liquid crystal cell of the ferroelectric liquid crystal display device during the electric field alignment.

Claim 8 (Withdrawn): The electric field alignment method according to claim 7, wherein the ferroelectric liquid crystal cell operates in a Half V-Switching Mode.

Claim 9 (Withdrawn): A ferroelectric liquid crystal display device, comprising:

a liquid crystal panel having a plurality of data lines, a plurality of gate lines and a plurality of thin film transistors arranged in a zigzag configuration between adjacent data lines of the data lines and having a ferroelectric liquid crystal material;

a gate driving circuit for supplying a gate voltage to the plurality of gate lines, the gate voltage set at a level above a threshold voltage of the thin film transistors during an electric field alignment of the ferroelectric liquid crystal material, the electric field alignment of the ferroelectric liquid crystal material is performed in a period that the ferroelectric liquid crystal material is transitioned from a nematic phase to a smectic phase, wherein the gate voltage is supplied to the gate lines in a range of from ten to four-hundred times during the electric field alignment of the ferroelectric liquid crystal material; and

a data driving circuit for inverting a polarity of a data voltage for the electric field alignment every time when the gate voltage is supplied to the gate lines and supplying the inverted data voltage for the electric field alignment to the data lines,

wherein an electric field generated from the inverted data voltage is applied to the ferroelectric liquid crystal material by using a leakage current of the thin film transistors.

Claims 10 and 11 (Canceled)

Claim 12 (Currently Amended): The ferroelectric liquid crystal display device according to claim 9, wherein the data driving circuit supplies ~~video~~ data voltage for displaying image having different polarities to the adjacent data lines during driving of the display device.

Claim 13 (Withdrawn): A ferroelectric liquid crystal display device, comprising:

- a liquid crystal panel having a plurality of data and gate lines and a plurality of thin film transistors arranged along a first direction in an offset configuration between adjacent data lines;
- a gate driving circuit for supplying a voltage below a threshold voltage of the thin film transistors to the gate lines during an electric field alignment of ferroelectric liquid crystal material of the display device; and
- a data driving circuit for controlling opposite polarity voltages supplied to the adjacent data lines during the electric field alignment while maintaining a voltage supplied to a ferroelectric liquid crystal cell during the electric field alignment.

Claim 14 (Withdrawn): A ferroelectric liquid crystal display device, comprising:

a liquid crystal panel having a plurality of data and gate lines and a plurality of thin film transistors arranged along a first direction in an offset configuration between adjacent data lines; and

a data driving circuit for controlling opposite polarity voltages supplied to the adjacent data lines during an electric field alignment while maintaining a voltage supplied to a ferroelectric liquid crystal cell during the electric field alignment,

wherein the gate lines remain electrically floating during the electric field alignment.